IN THE CLAIMS:

1. (Currently Amended) An improved vehicle wheel service system having a central processing unit and configured to support a vehicle wheel assembly consisting of at least a vehicle wheel rim on a rotating support structure, the improvement comprising:

an imaging sensor assembly disposed to acquire at least one ~~or more~~ optical ~~images~~ image of at least a portion of the vehicle wheel assembly, said optical image consisting of a two dimensional array of pixel elements ~~said imaging sensor further configured to acquire distance information associated with each of said one or more acquired optical images~~; and

wherein the central processing unit is configured to receive said acquired optical images ~~at least said distance information~~ from said imaging sensor assembly to identify at least one distance measurement associated with said portion of the vehicle wheel assembly and to facilitate ~~one or more~~ at least one vehicle wheel service ~~procedures~~ procedure.

2. (Original) The improved vehicle wheel service system of Claim 1 wherein the vehicle wheel service system is a vehicle wheel balancing system.

3. (Withdrawn) The improved vehicle wheel service system of Claim 1 wherein the vehicle wheel service system is a vehicle tire changing system.

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein said ~~imaging sensor is further configured to acquire~~ distance

~~information~~ measurement is associated with ~~each of said one or more acquired optical images for~~ at least one feature contained within said ~~one or more~~ acquired optical ~~images~~ image.

7. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance ~~information~~ measurement to identify a surface profile of the vehicle wheel rim.

8. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance ~~information~~ measurement to calculate one or more parameters of the vehicle wheel assembly.

9. (Currently Amended) The improved vehicle wheel service system of Claim 8 wherein said one or more parameters [[is]] includes radial runout about a circumference of ~~one or more~~ a tire bead seat ~~surfaces~~ surface of the vehicle wheel rim.

10. (Currently Amended) The improved vehicle wheel service system of Claim 8 wherein said one or more parameters [[is]] includes lateral runout about a circumference of the vehicle wheel rim.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance

~~information~~ measurement to identify a miss-centering of the vehicle wheel rim on the rotating support structure.

15. (Withdrawn) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance information to identify the presence of an installed tire pressure sensor associated with the vehicle wheel assembly.

16. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance ~~information~~ measurement to identify one or more features of the vehicle wheel assembly.

17. (Currently Amended) The improved vehicle wheel service system of Claim 16 wherein each of said one or more identified features is selected from a set of features which include at least a spoke configuration and at least a spoke profile.

18. (Cancelled)

19. (Original) The improved vehicle wheel service system of Claim 16 wherein said one or more features include a wheel rim edge profile.

20. (Original) The improved vehicle wheel service system of Claim 16 wherein said one or more features include a valve stem location.

21. (Original) The improved vehicle wheel service system of Claim 16 wherein said one or more features include a tire defect.

22. (Original) The improved vehicle wheel service system of Claim 16 wherein said one or more features include a tire tread depth.

23. (Currently Amended) The improved vehicle wheel service system of Claim 16 wherein said one or more features include an ~~installed~~ imbalance correction weight.

24. (Original) The improved vehicle wheel service system of Claim 16 wherein said one or more features include a wheel rim surface defect.

25. (Currently Amended) The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance ~~information~~ measurement to identify one or more imbalance correction weight placement locations on the vehicle wheel rim.

26. (Withdrawn) The improved vehicle wheel service system of Claim 1 further including at least one tire bead removal arm supporting a tire bead roller for operatively engaging the vehicle wheel assembly to displace a tire from the wheel rim, and wherein said imaging sensor assembly is disposed on said at least one tire bead removal arm.

27. (Withdrawn) The improved vehicle wheel service system of Claim 25 wherein said imaging sensor assembly is disposed on said at least one tire bead removal arm adjacent said tire bead roller, and wherein said imaging sensor assembly has a field of view including a portion of a vehicle wheel rim tire bead seat exposed during operative engagement between said tire bead roller and the vehicle wheel assembly.

28. (Cancelled)

29. (Cancelled)

30. **(Currently Amended)** The improved vehicle wheel service system of Claim 1 wherein the central processing unit is further configured to utilize said distance ~~information~~ measurement to alter a configuration of one or more components of the improved vehicle wheel service system.

31. **(Withdrawn)** The improved vehicle wheel service system of Claim 30 further including an adjustable tire inflation means, and wherein said central processor is further configured to utilize said distance information to position said tire inflation means in operative proximity to the vehicle wheel assembly to assist in mounting and inflating a tire on the vehicle wheel rim.

32. **(Withdrawn)** The improved vehicle service system of Claim 30 further including a pair of tire bead removal arms each supporting a tire bead roller for operatively engaging the vehicle wheel assembly to displace a tire from the wheel rim, and wherein said central processor is further configured to utilize said distance information to position each of said tire bead removal arms such that said associated tire bead rollers operatively engage the vehicle wheel assembly.

33. **(Withdrawn)** The improved vehicle wheel service system of Claim 32 wherein the central processing unit is further configured to alter an engagement of said tire bead rollers with said vehicle wheel assembly responsive to said distance information indicative of the presence of a wheel assembly feature.

34. **(Withdrawn)** The improved vehicle wheel service system of 33 wherein said wheel assembly feature is a valve stem.

35. **(Withdrawn)** The improved vehicle wheel service system of 33 wherein said wheel assembly feature is an installed tire pressure sensor.

36. (Currently Amended) An improved wheel parameter measurement apparatus for a dynamic wheel balancer having a spindle shaft for mounting a vehicle wheel assembly consisting of at least a vehicle wheel rim for rotation thereon, the improvement comprising:

~~an optical energy means where at least a partial amount of said projected optical energy impinges an area of the wheel assembly on the spindle,~~

an optical energy sensing means for receiving reflected optical energy from an area of the vehicle wheel assembly on the spindle, and for generating a two-dimensional image of said detected optical energy, said two-dimensional image composed of a plurality of image pixels and associated distance data; ~~providing signals containing three dimensional data responsive thereto,~~ and

a processing means for receiving said ~~signals provided~~ images generated by said optical energy sensing means ~~for extracting~~ to extract data relating to at least one ~~of said features~~ feature of the ~~mounted~~ wheel assembly,

37. (Original) The improved wheel parameter measurement apparatus of claim 36 wherein said extracted data identifies a feature location on the mounted wheel assembly.

38. (Original) The improved wheel parameter measurement apparatus of claim 36 wherein said extracted data identifies a feature dimension on the mounted wheel assembly.

39. (Original) The improved wheel parameter measurement apparatus of claim 36 wherein said extracted data identifies a configuration of said at least one feature on the mounted wheel assembly.

40. (Cancelled)

41. (Previously Presented) The method of claim 44 wherein said extracted data identifies a feature location on the mounted wheel assembly.

42. (Previously Presented) The method of claim 44 wherein said extracted data identifies a feature dimension on the mounted wheel assembly.

43. (Previously Presented) The method of claim 44 wherein said extracted data identifies a feature configuration on the mounted wheel assembly.

44. (Currently Amended) A method for measuring one or more features of a vehicle wheel assembly consisting of at least a vehicle wheel rim where the vehicle wheel assembly is mounted for rotational movement about an axis on a vehicle wheel service system comprising the steps of:

~~providing optical energy means where at least a partial amount of said optical energy impinges an area of the vehicle wheel assembly,~~

detecting ~~said~~ reflected optical energy ~~reflected~~ from ~~said impinged~~ a three-dimensional area of the vehicle wheel assembly;

generating a two-dimensional image of said three-dimensional area of the vehicle wheel assembly from said detected optical energy, said two-dimensional image composed of a plurality of image pixels ~~and encoding three-dimensional data~~;

processing said ~~detected optical energy~~ generated image to extract data associated with at least one feature of the vehicle wheel assembly.

45. (Currently Amended) A method for selecting imbalance correction weight parameters in a vehicle wheel balancing system including an imaging sensor assembly configured to provide dimensional data associated with features in a field of view

encompassing at least a portion of a vehicle wheel assembly undergoing a vehicle wheel balancing procedure, comprising:

providing, within the field of view of the imaging sensor assembly, an indicator at [[an]] a location on a vehicle wheel rim of the vehicle wheel assembly at which at least one imbalance correction weight is to be placed;

acquiring at least one image of said indicator with said imaging sensor assembly;

identifying said location on said vehicle wheel rim from said position of said indicator within said at least one image;

calculating one or more imbalance correction weight parameters corresponding to at least one imbalance correction weight disposed in an imbalance weight correction plane at said identified location.

46. (Currently Amended) A method for selecting imbalance correction weight parameters in a vehicle wheel balancing system including an imaging sensor assembly configured to provide dimensional data associated with features in a field of view encompassing at least a portion of a vehicle wheel assembly undergoing a vehicle wheel balancing procedure, comprising:

~~providing~~ positioning, within the field of view of the imaging sensor assembly, an indicator at [[an]] a desired location on a vehicle wheel rim of the vehicle wheel assembly ~~at which~~ for placement of at least one imbalance correction weight ~~is to be placed~~;

acquiring at least one image of said indicator at said location with said imaging sensor assembly;

~~providing a representation of said indicator relative to at least one imbalance correction weight placement location~~

utilizing said acquired image to select an imbalance correction mode.

47. (New) The method of Claim 46 for selecting imbalance correction weight parameters further including the step of utilizing said acquired image to select an imbalance correction weight type.

48. (New) A method for facilitating placement of an imbalance correction weight in a vehicle wheel balancing system including an imaging sensor assembly configured to provide dimensional data associated with features in a field of view encompassing at least a portion of a vehicle wheel assembly undergoing a vehicle wheel balancing procedure, comprising:

calculating a placement location for at least one imbalance correction weight on the vehicle wheel assembly;

positioning an imbalance correction weight within the field of view of the imaging sensor assembly;

acquiring at least one image of the imbalance correction weight within the field of view; and

processing said acquired image to provide feedback for placement of said imbalance correction weight at said calculated placement location.

49. (New) The vehicle wheel service system of Claim 1 wherein said imaging sensor assembly is configured to acquire stereoscopic images of said portion of the vehicle wheel assembly.

50. **(New)** The vehicle wheel service system of Claim 1 wherein said imaging sensor assembly is configured to acquire distance information for each pixel element in said optical image.

51. **(New)** The improved vehicle wheel service system of Claim 16 wherein each of said one or more identified features include tire surface markings.

52. **(New)** The improved vehicle wheel service system of Claim 1 wherein said imaging sensor is further configured to acquire distance information associated with each of said acquired optical images; and

wherein said central processing unit is configured to utilize said acquired distance information to identify said distance measurement.

53. **(New)** The improved vehicle wheel service system of Claim 1 wherein said imaging sensor is further configured to acquire distance information associated with each pixel in said acquired optical images; and

wherein said central processing unit is configured to utilize said acquired distance information to identify said distance measurement.

54. **(New)** The improved vehicle wheel service system of Claim 2 wherein the central processing unit is further configured to utilize said distance information to identify the presence of an installed tire pressure sensor associated with the vehicle wheel assembly.

55. **(New)** The improved vehicle wheel service system of Claim 2 further including at least one tire bead removal arm supporting a tire bead roller for operatively engaging the vehicle wheel assembly to displace a tire from the wheel rim, and wherein said imaging sensor assembly is disposed on said at least one tire bead removal arm.

56. **(New)** The improved vehicle wheel service system of Claim 55 wherein said imaging sensor assembly is disposed on said at least one tire bead removal arm adjacent said tire bead roller, and wherein said imaging sensor assembly has a field of view including a portion of a vehicle wheel rim tire bead seat exposed during operative engagement between said tire bead roller and the vehicle wheel assembly.

57. **(New)** The improved vehicle service system of Claim 2 further including a pair of tire bead removal arms each supporting a tire bead roller for operatively engaging the vehicle wheel assembly to displace a tire from the wheel rim, and wherein said central processor is further configured to utilize said distance information to position each of said tire bead removal arms such that said associated tire bead rollers operatively engage the vehicle wheel assembly.

58. **(New)** The improved vehicle wheel service system of Claim 58 wherein the central processing unit is further configured to alter an engagement of said tire bead rollers with said vehicle wheel assembly responsive to said distance information indicative of the presence of a wheel assembly feature.

59. **(New)** The improved vehicle wheel service system of 58 wherein said wheel assembly feature is a valve stem.

60. **(New)** The improved vehicle wheel service system of 58 wherein said wheel assembly feature is an installed tire pressure sensor.